



A Quality and Technology Network

The RoHS Directive and the Role of SMEs in the Electrical and Electronic Industries

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*NASA AP2 International Pollution Prevention Workshop
Cape Canaveral, 22-23 of September 2004*

Agenda

Who is ISQ

ISQ & C3P

RoHS Directive

LFS
State of Art

European Industry
SMEs Status

Conclusions



Who is ISQ

- Founded in 1965;
- Privately owned, being a non profit technical and scientific association;
- Two hundred company members;
- Around 700 staff teamed with customers and partners;
- Turnover: 42 M€ (2003);
- Operating in more than 20 countries worldwide



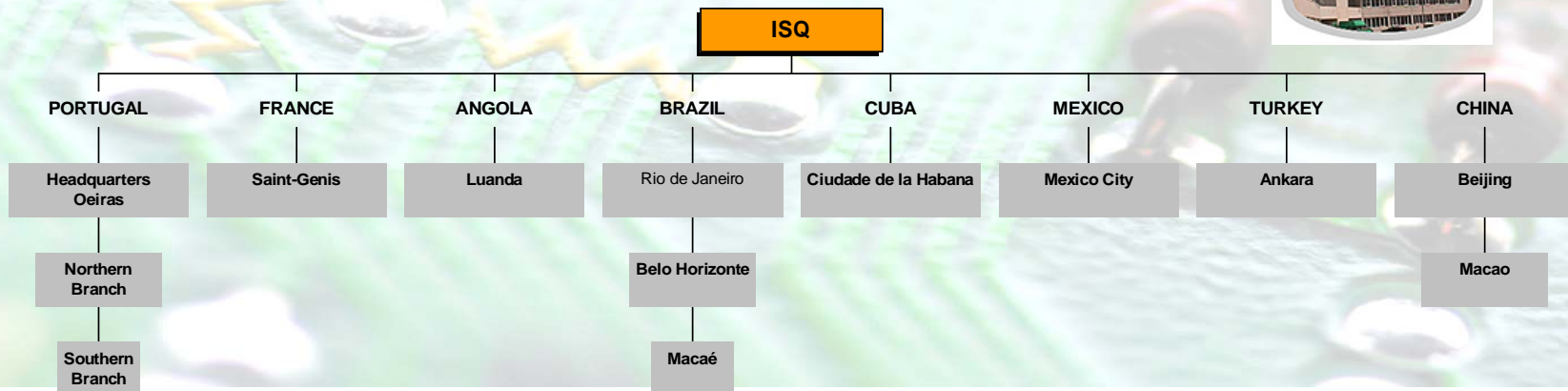
ISQ Location

Portugal

Headquarter: **Taguspark, Oeiras**

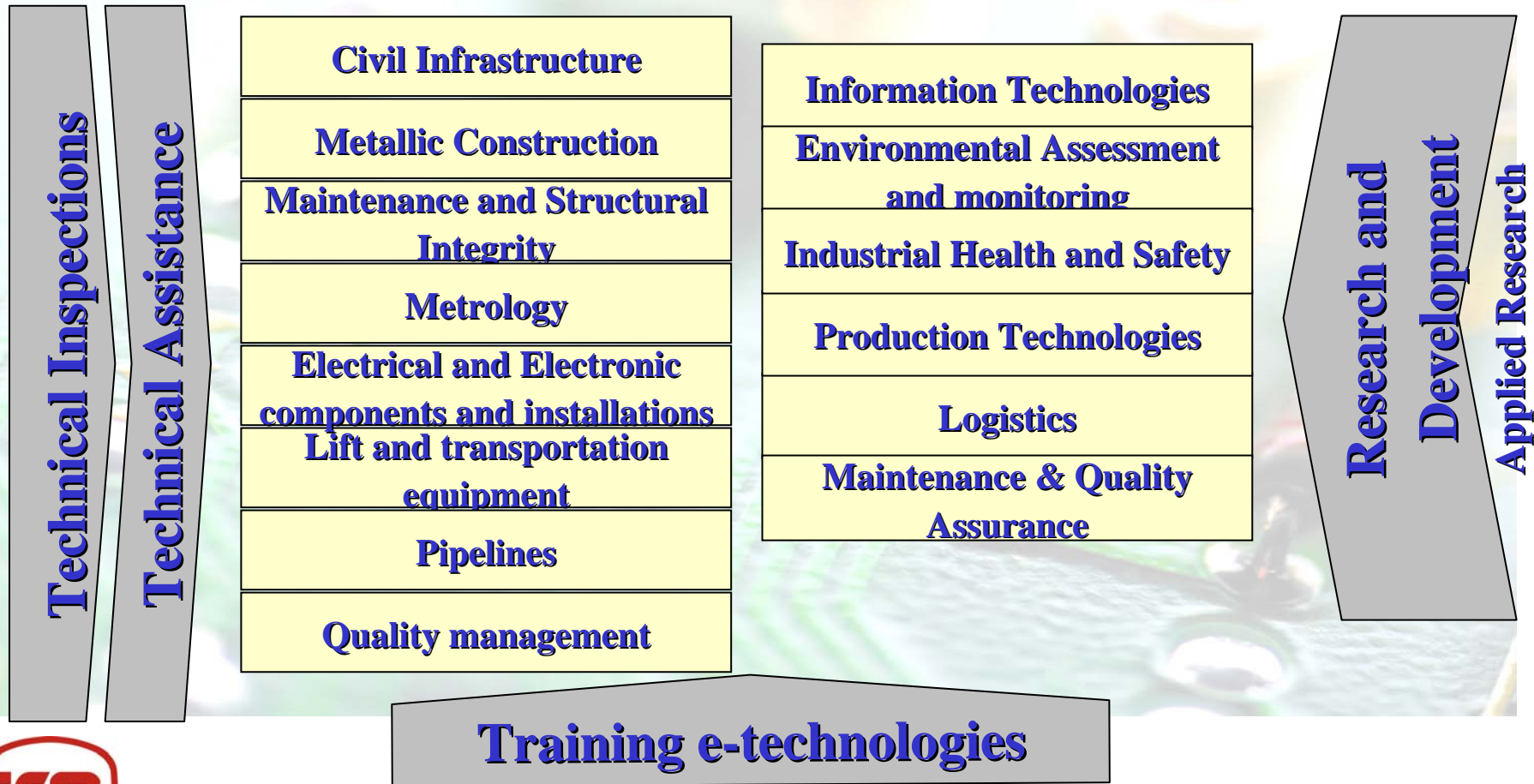
Delegations: **Porto, Sines, Castelo Branco**

Offices: **Braga, Viseu, Leiria, Loulé**



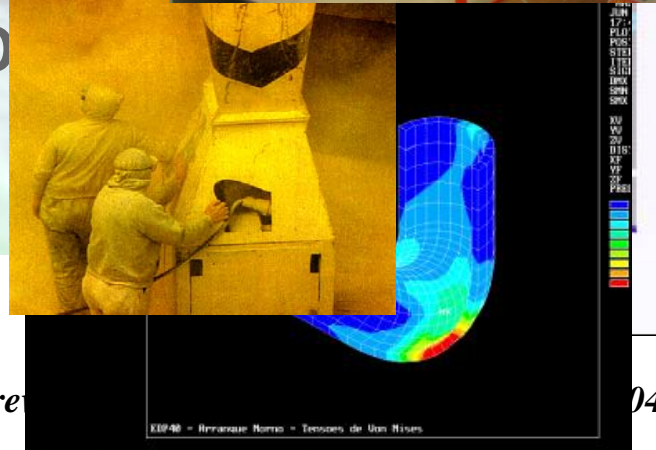
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ISQ – Main Activities Areas



Engineering Activities

STRUCTURAL INTEGRITY
PRODUCTION TECHNOLOGY
NON DESTRUCTIVE TESTS
ENVIRONMENT
ELECTRICAL AND ELECTRONICS
INFORMATION TECHNOLOGY
MODELLING



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Laboratories

LABCAB

Laboratory of Electrical Cables Testing

LABEL

Laboratory of Electrical and Electronic Equipments/components Testing

LABEND

Laboratory of Non Destructive Testing

LABET

Laboratory of Thermo Dynamical Testing

LABMEC

Laboratory of Mechanical Behaviour

LABMETRO

Laboratory of Metrology

LABMM

Laboratory of Metallurgy and Materials

LABQUI

Laboratory of Environment and Chemistry

LABRD

Laboratory of Acoustic & Noise Testing

Other Laboratories (Non accredited):

Laboratory of Concrete Testing

Laboratory of Anticorrosion Protective Coatings

Laboratory of Electromagnetic Compatibility Testing

Welding & Robotics

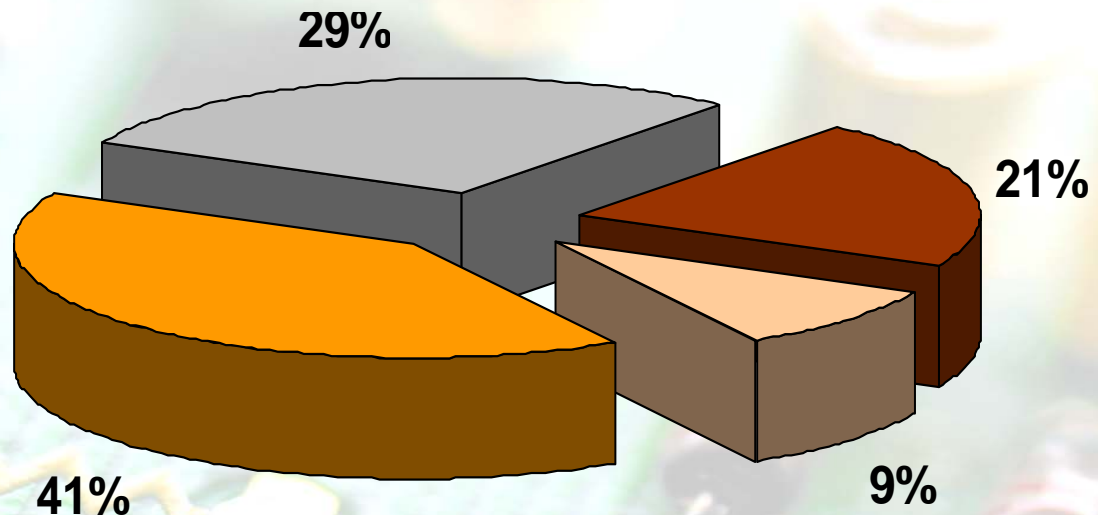
High Density Beams



Research & Development

R&D Projects : 300

1990-2004



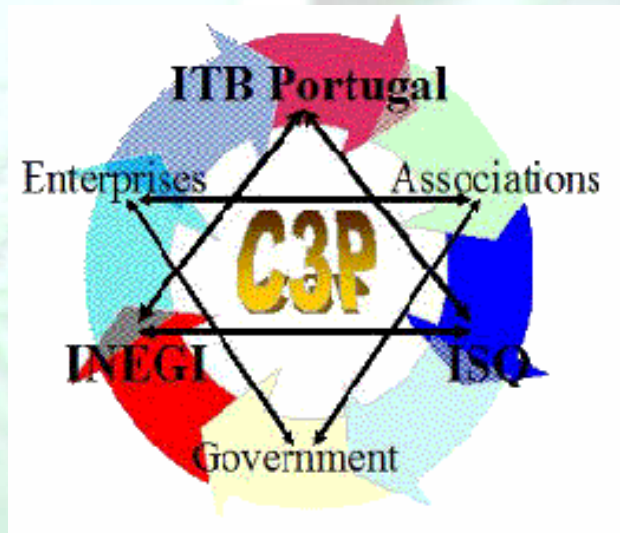
- Production Technologies & Materials Behaviour
- Inspection & Industrial Life Assessment
- Environment, Health and Safety
- Information Technology



ISQ & C3P

C3P – Centre for Pollution Prevention

**“Integrating Common Problems for
Shared Solutions”**



- Agreement signed 18 September 2002
- NASA AP2 Program Office as facilitator
- Portuguese Environment Ministry Agreement



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ISQ & C3P

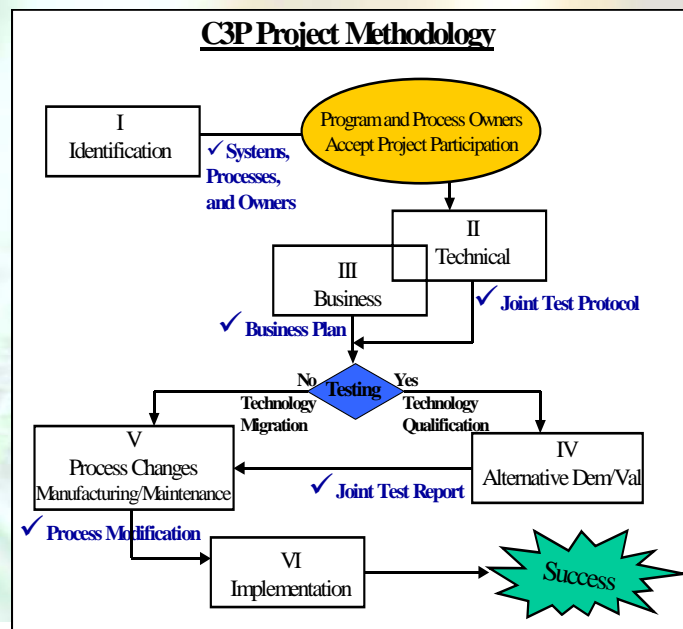
Collaboration started at 2003 in two main projects areas

VOC

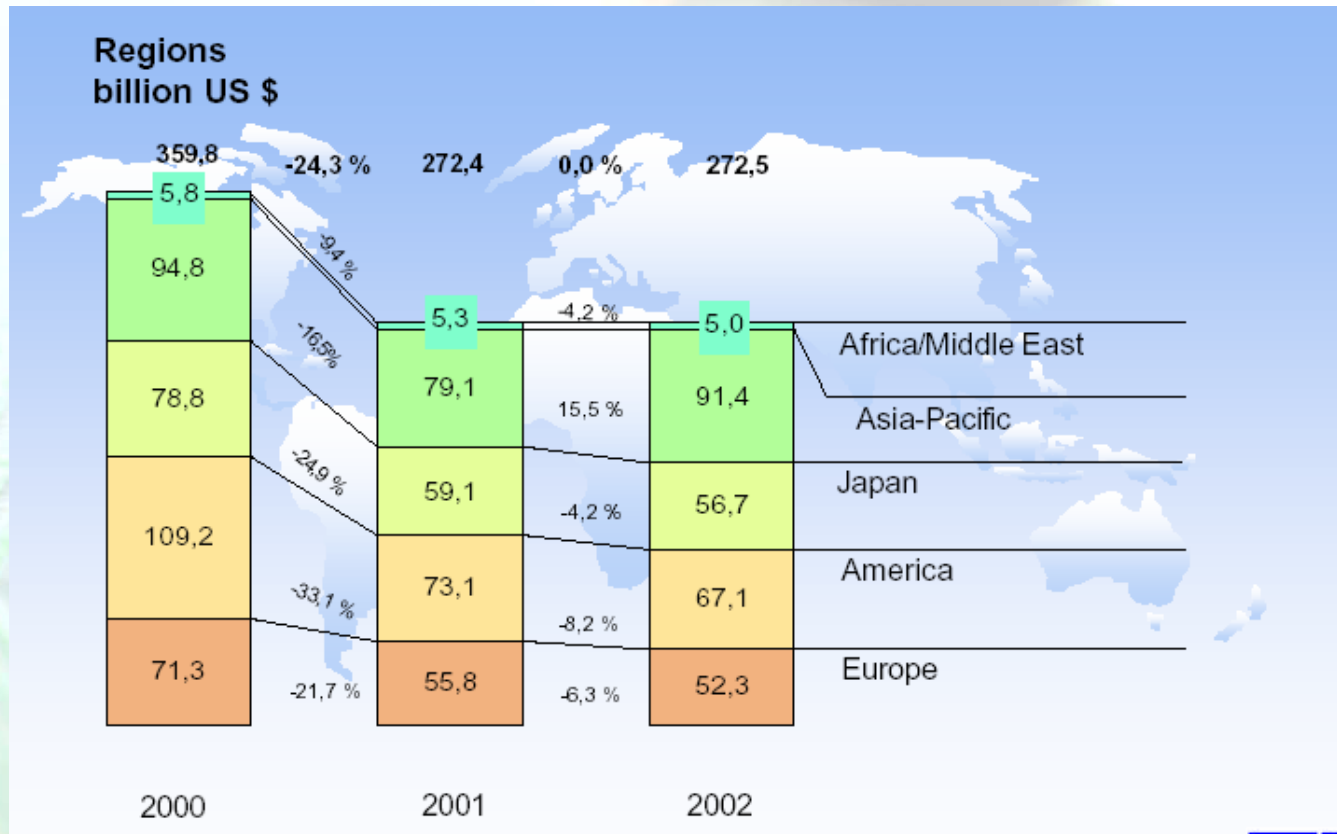
LFS

- Visits to industrial companies
- Survey Questionnaires
- Development of TT projects

C3P Project Methodology



World Market for Electronic Components

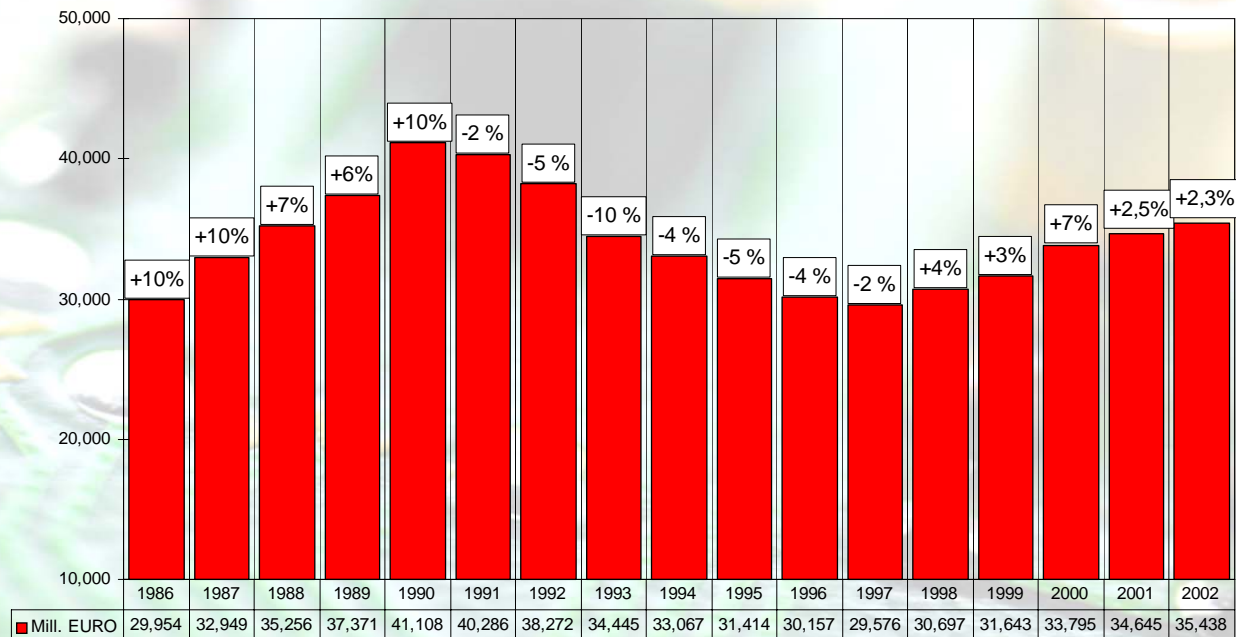


Source: ZVEI (D)



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Consumer Electronic Market in Europe



Source: European Industry Association



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SME European Universe

<i>EC Country</i>	<i>UK</i>	<i>Germany</i>	<i>France</i>	<i>Italy</i>	<i>Rest Europe</i>
SME Number	450	2.000	1.500	1.800	3.300

Source: Smart Group



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RoHS Directive & Motives for Implementation in the Electric and Electronic Industry

Directive 2002/95/EC

Members States shall ensure new electrical and electronic equipment in the market does not contain lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyls) or PBDE (Polybrominated diphenyl ethers) due to its toxic effect in human, animals and general environment



RoHS Directive & Motives for Implementation In the Electric and Electronic Industry

Who is affected by Lead Removal? (2002/96/EC-Annexs)

Household appliances,
IT and telecommunication equipment
Consumer equipment
Lighting equipment
Medical devices

Exceptions (2002/95/EC – Annex)

Mercury in straight fluorescent lamps and others
Lead in glass of cathode ray tubes, electronic components
and fluorescent tubes
Lead as alloying element in steel up to 0,35 lead by weight
Lead in high temperature solders
DECA BDE

Others

Aircraft Equipment (not mentioned in Annexs)
Satellites and Defence Equipment (on going discussions)



Overview & SMEs Needs



NEW COMING EUROPEAN DIRECTIVES
Harzardous Products - RoHS (2002/95/EC)

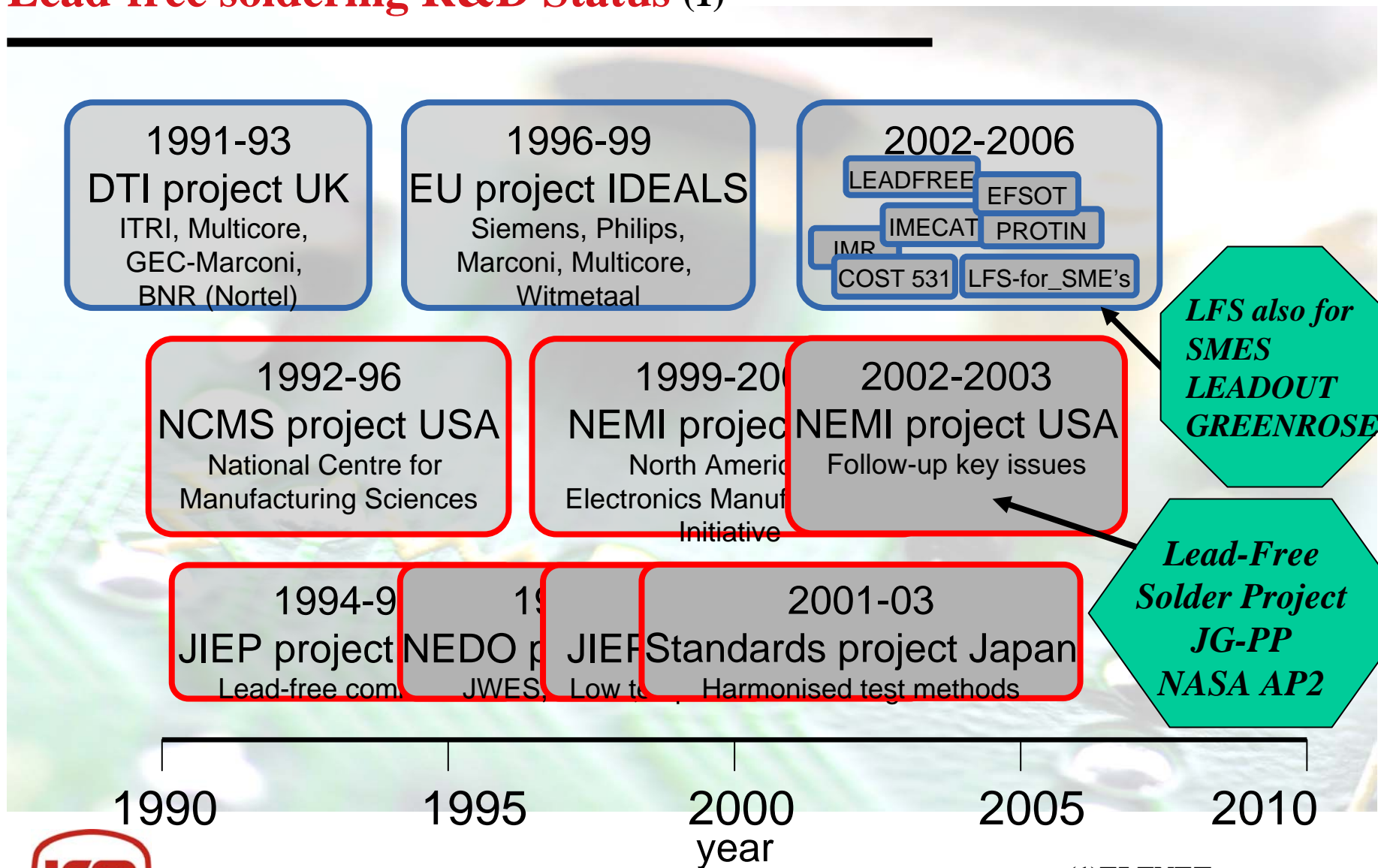
Electronic Equipment End of Life - WEEE (2002/96/EC)

July
2006

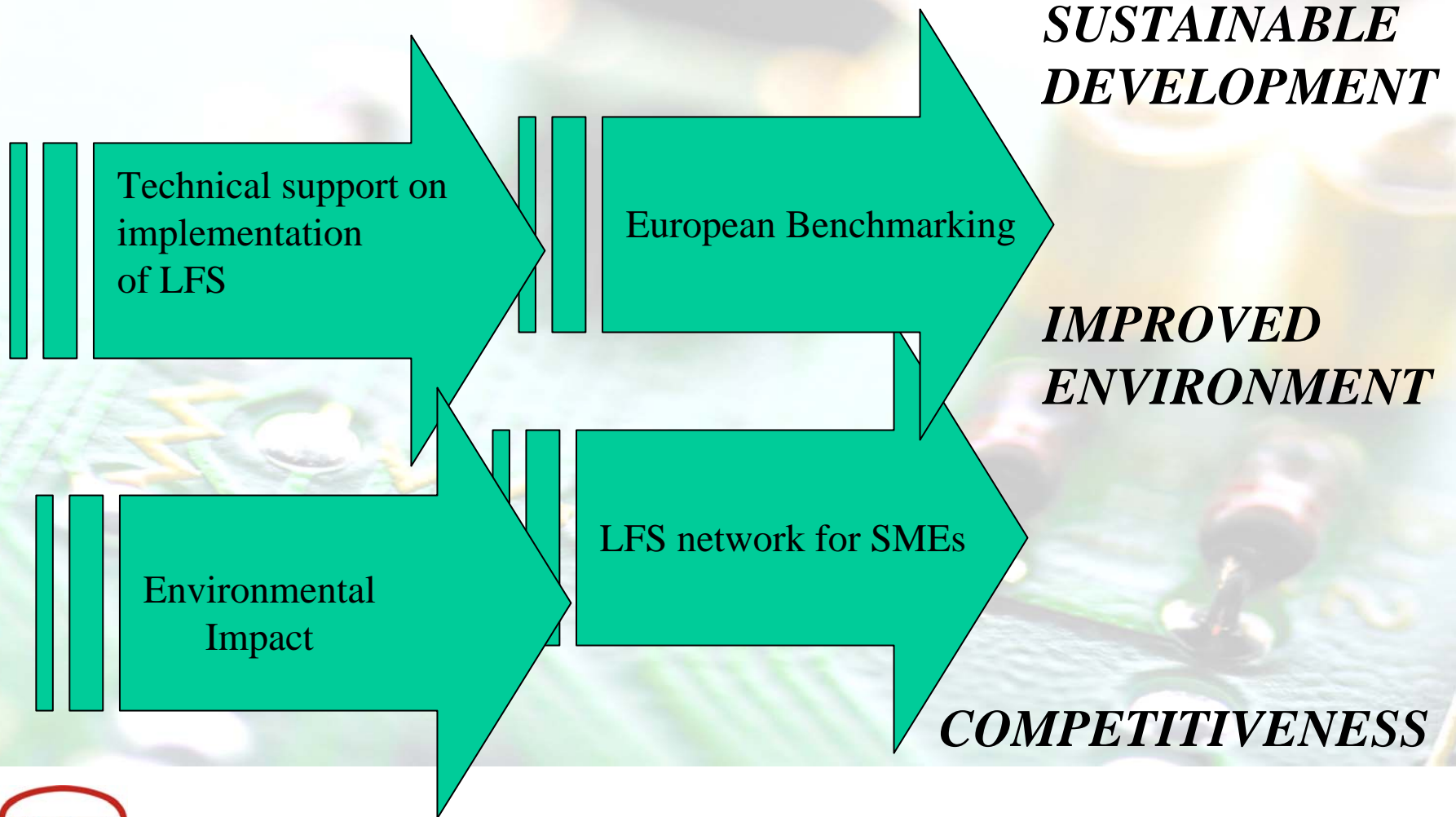
- SME LACK OF KNOWLEDGE AND LOW LEVEL OF LFS IMPLEMENTATION
- LACK OF RESEARCH WORK REGARDING LOW SCALE PRODUCTION (SMALL SERIES), REWORK AND MANUAL SOLDERING
- EUROPEAN BENCHMARKING OF LFS PROCESS FOR QUALITY IMPROVEMENT



Lead-free soldering R&D Status (1)



Conclusions



Useful Documents & Addresses

- **Directives:**
 - ✓ 2002/95/CE (RoHS)
 - ✓ 2002/96/CE (WEEE)
 - ✓ www.lead-free.org
 - ✓ www.nemi.org
 - ✓ www.nist.gov
 - ✓ www.jeida.or.jp
 - ✓ www.europeanleadfree.org





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Thank you

www.isq.pt